INSULEX
Sold by
Glencoe Lime & Cement Co.
St. Louis, Mo.

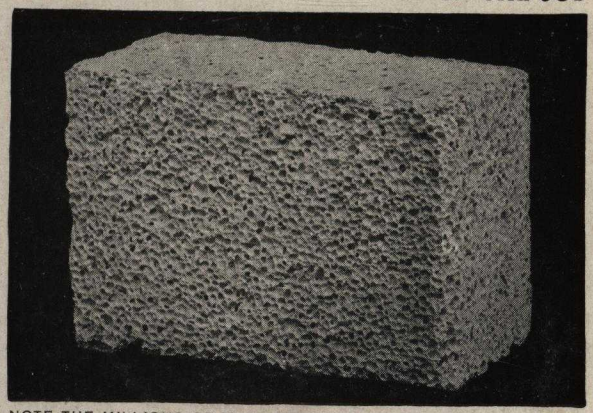
SPECIFICATIONS
FOR

INSULEX

"THE MINERAL CORK"
PAT. NOV. 25, 1924

FIRE-PROOF
VERMIN-PROOF } **INSULATION**
ROT-PROOF

AN INSULATION THAT IS POURED ON THE JOB



NOTE THE MILLIONS OF TINY CONFINED AIR CELLS SURROUNDED BY STRUCTURAL MINERAL WALLS

SPECIFICATIONS HEREIN:

WALL INSULATION
SOUND DEADENING
FLOOR INSULATION
CEILING INSULATION
FLOOR FILLER
ROOF INSULATION

OTHER SPECIFICATIONS ON REQUEST — OTHER SPECIFICATIONS TO FOLLOW

ILLINOIS ASBESTOS PRODUCTS COMPANY
140 S. DEARBORN STREET
CHICAGO

INSULEX
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Glencoe Lime & Cement Co.
St. Louis, Mo.

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Specifications for the Use

of

INSULEX

"THE MINERAL CORK"

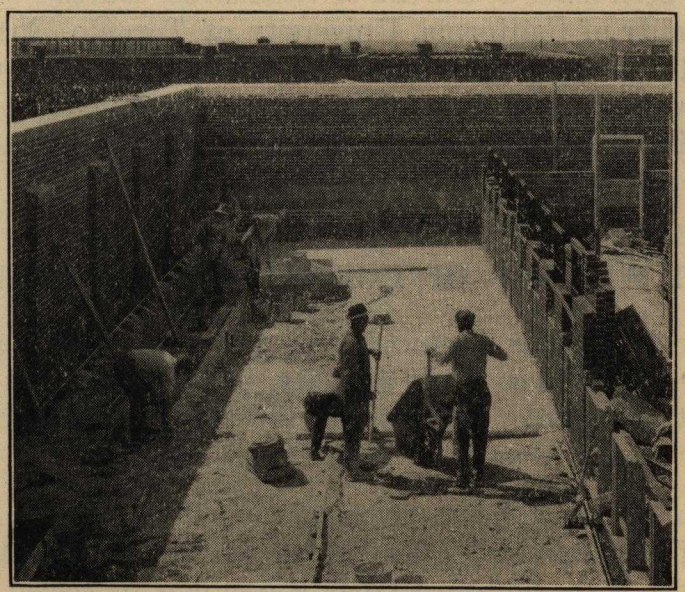
Pat. Nov. 25, 1924

The poured-in-place-on-the-job Insulation

NOTE—The following specifications cover a number of the common uses to which Insulex is put in ordinary building practice. Additional specifications will be prepared as required.

Other uses to which Insulex has been put are as follows: insulating tunnels of Coke Ovens, insulating Bake Ovens, insulating roofs of Clay Plants, insulating Boilers and Hot Water Tanks, insulating Cold Storage Rooms, insulating Water Towers, covering Steam and Hot Water Pipes, covering underground Heating Mains, filling Pipe chases in high structures to insulate the pipes contained in the chases, building solid Partition Walls.

Where "parts" of water or Insulex are referred to in these specifications the measurements are to be made by bulk.



Applying Insulex to cement roof deck, Medical Building, University of Michigan.

PECULIAR CHARACTERISTICS OF INSULEX

INSULEX comes on the job as a fine powder. When mixed with water it is ready to be poured any place, anywhere, or into any shape. It contains a "mineral yeast", which becomes active on the addition of water and causes the mass to expand to many times its original bulk before it sets.

Insulex powder is put up in paper sacks, each holding 80 pounds. Directions for use are printed on every sack, also the name and trademark, INSULEX, "The Mineral Cork". There are several different Insulex powders, viz. Nos. 12, 18, 24, and 30. The numbers indicate the number of pounds of each powder required to make a cubic ft. of hardened, cellular, finished Insulex containing millions of confined, dead-air cells which, next to a vacuum, are the greatest insulation medium known.

MIXING AND APPLYING INSULEX

When ready to use, two parts, by bulk, of Insulex powder are stirred into one part of water. The mixture begins to expand immediately and in less than a minute or two, and while still thin, it is ready to be poured into place. It fills all cracks and crevices and the entire space alloted to the layer of insulation or sound-proofing or filler. It sets in about twenty minutes after it has been poured, and then hardens into a permanent cellular structure. This structure is so light for its bulk that Insulex has been called "puffed gypsum".

MANY TESTS MADE ON INSULEX

Tests have been made at Bureau of Standards, Bureau of Steam Engineering, University of California, University of Toronto, Armour Institute of Chicago and in many private industrial laboratories. The tests have been numerous and varied; from tests of thermal conductivity, sound-deadening and bonding with other materials, to tests involving its tensile, compression and structural strength.

DIFFERENT WEIGHTS OF INSULEX FOR DIFFERENT USES.

The lighter the Insulex product the higher it is in insulating efficiency and the further it goes in covering capacity, but the lighter it is the weaker its structural strength becomes, however, the very light weight Insulex products are never placed where they are not protected.

Insulex No. 12, which has a covering capacity of 2,000 sq. ft. one inch thick per ton of Insulex powder, has almost as high insulating efficiency as cork, but like cork it should be used only where it is protected. No. 24 Insulex, on the other hand, is used to bind brick or tile walls together, instead of

bonding strips or ties, while Insulex Special Floor & Roof Fill, which also weighs but 24 pounds to the cubic ft. and has a covering capacity of 1,000 sq. ft. one inch thick per ton of Insulex powder, can be walked on soon after it is poured.

The different weights of Insulex, therefore, are used for different purposes and to obtain different results. If uncertain which weight to use for a specific case the reader is requested to write the manufacturer of Insulex.

COVERING CAPACITY

No. of pounds of Insulex powder, required to make a cubic ft. of finished Insulex.	Covering capacity per ton in square ft. 1 inch thick.
No. 12 Insulex—12 pounds	2,000 sq. ft.
No. 18 Insulex—18 pounds	1,333 sq. ft.
No. 24 Insulex—24 pounds	1,000 sq. ft.
No. 30 Insulex—30 pounds	750 sq. ft.
Insulex Special—Floor and Roof Fill—24 pounds	1,000 sq. ft.

For further information see two-page advertisement in Sweet's Index for 1924—*pages* 1238 *and* 1239 *or write to the manufacturer*

ILLINOIS ASBESTOS PRODUCTS COMPANY
140 South Dearborn Street
Chicago, Ills.

Specifications for the Use

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INSULEX

"THE MINERAL CORK"

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WALLS

INSULATION OF WALLS OF BUILDINGS OF FRAME CONSTRUCTION, WITH STUCCO, WOOD, OR BRICK VENEER EXTERIOR

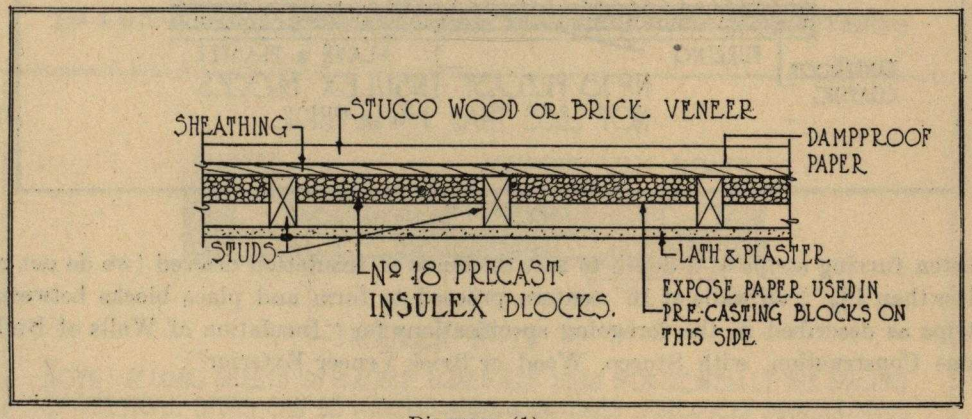


Diagram (1)

When the exterior of the building has been closed in, proceed to precast blocks of Insulex for placing between studs as follows:

Preparation of Moulds

Lay a strip of tar paper on the rough floor, and on top of the tar paper a strip of building paper of the same width. Lay and lightly nail directly against each edge and across one end of the paper three dressed 2x4's with the 4" side down, if Insulex 2" thick is required. The blocks can be made of any desired thickness by using different thicknesses of lumber.

Preparation of Material

Place in the mixing container, one part of clear water, to the water add two parts of Insulex No. 18, stir rapidly and thoroughly, when thoroughly mixed and while expansion is taking place, pour the Insulex on top of the paper between the 2x4's and screed level with the top of the 2x4's. A series of moulds as described in the preceding paragraph can be laid so that they may be filled one after another. After the first mould filled has stood for not less than half an hour, the Insulex can be cut with a knife and straight edge into blocks of the proper width to fit between the studs. Cut clear through the top layer of paper on which the Insulex was poured.

Installation

Lift a block, to which the building paper will be sticking, carefully from the floor and set it vertically between studding with paper toward the inside of the room being insulated,

the next block can then be placed on top of the first. At intervals mix in a bucket some Insulex into water and stir until it becomes of the consistency of thin putty. Take handfuls of this putty-like mixture and roughly fill the joints between the blocks and the joints between the blocks and the studding. Be sure that all blocks are firmly in place by being sealed together and sealed to the studs with the putty. This can be done by hand, no trowelling being required. After the blocks are in place and dry the walls may be lathed and plastered.

INSULATION OF WALLS OF BUILDINGS CONSTRUCTED OF SOLID BRICK OR TILE OR CONCRETE

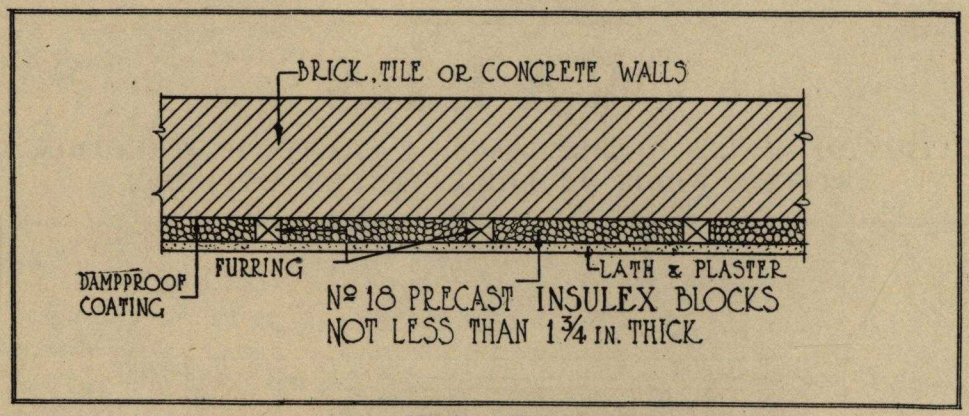


Diagram (2)

Fasten furring strips of a depth to suit thickness of Insulation desired (we do not recommend less than 1¾") on walls at 16" centers, proceed to form and place blocks between furring strips as described in the foregoing specifications for "Insulation of Walls of Buildings of Frame Construction, with Stucco, Wood or Brick Veneer Exterior".

INSULATION OF WALLS OF BUILDINGS OF BRICK OR TILE CONSTRUCTION IN WHICH A VERTICAL HOLLOW SPACE HAS BEEN LEFT IN THE INTERIOR OF THE WALLS TO BE FILLED WITH INSULEX

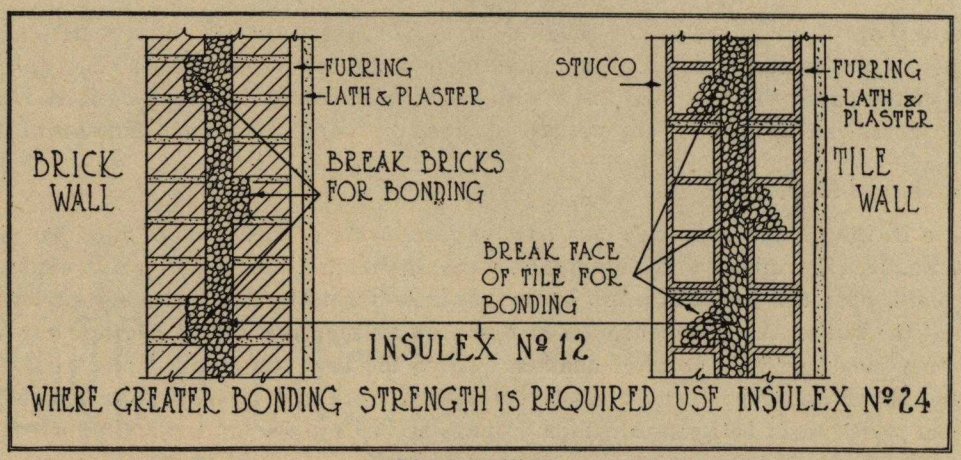


Diagram (3)

NOTE:—Where the thickness of brickwork or tile block work is sufficient for structural requirements, and the inner wall lining is for furring only, use Insulex No. 12 in the vertical space.

The bonding of furring brick or furring tile to exterior wall can be obtained, in the case of brick, by using a half brick at intervals. In the case of tile the bonding can be obtained by breaking parts of the face of the tile which will be next the vertical space with a hammer as the tiles are being set. This will allow the Insulex to flow into the spaces left in the brick or tile thus bonding the wall.

The use of metal bonding strips or ties across insulation should be avoided if possible, as the metal of which they are composed is an excellent conductor of heat or cold.

Where greater strength is required between two thicknesses of brick or between two thicknesses of tile block, use Insulex No. 24 which has a bonding strength of 8,300 pounds to the square ft. Tooth the Insulex into the inner sides of the wall as described above.

Mix Insulex as previously described and while it is still expanding pour it in the hollow space in the walls, as the walls are being erected. The Insulex should not be poured from a height exceeding 15" at one time, and half an hour should elapse between the pouring of each layer.

TO CONSTRUCT SOUND DEADENED INTERIOR PARTITIONS

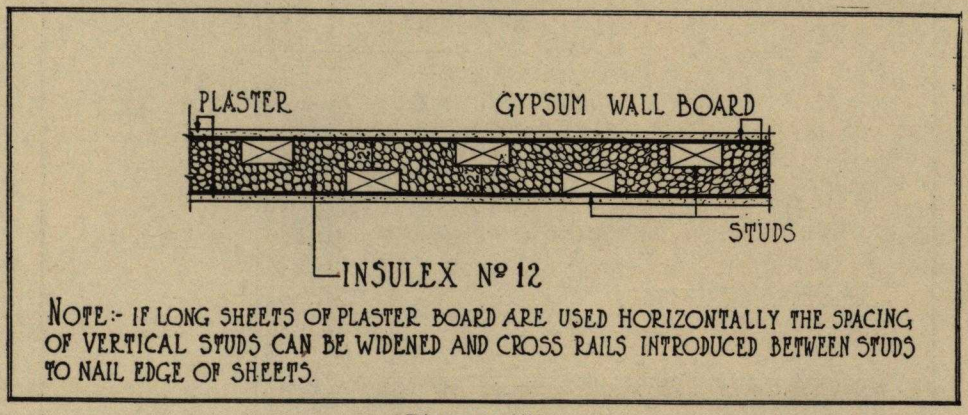
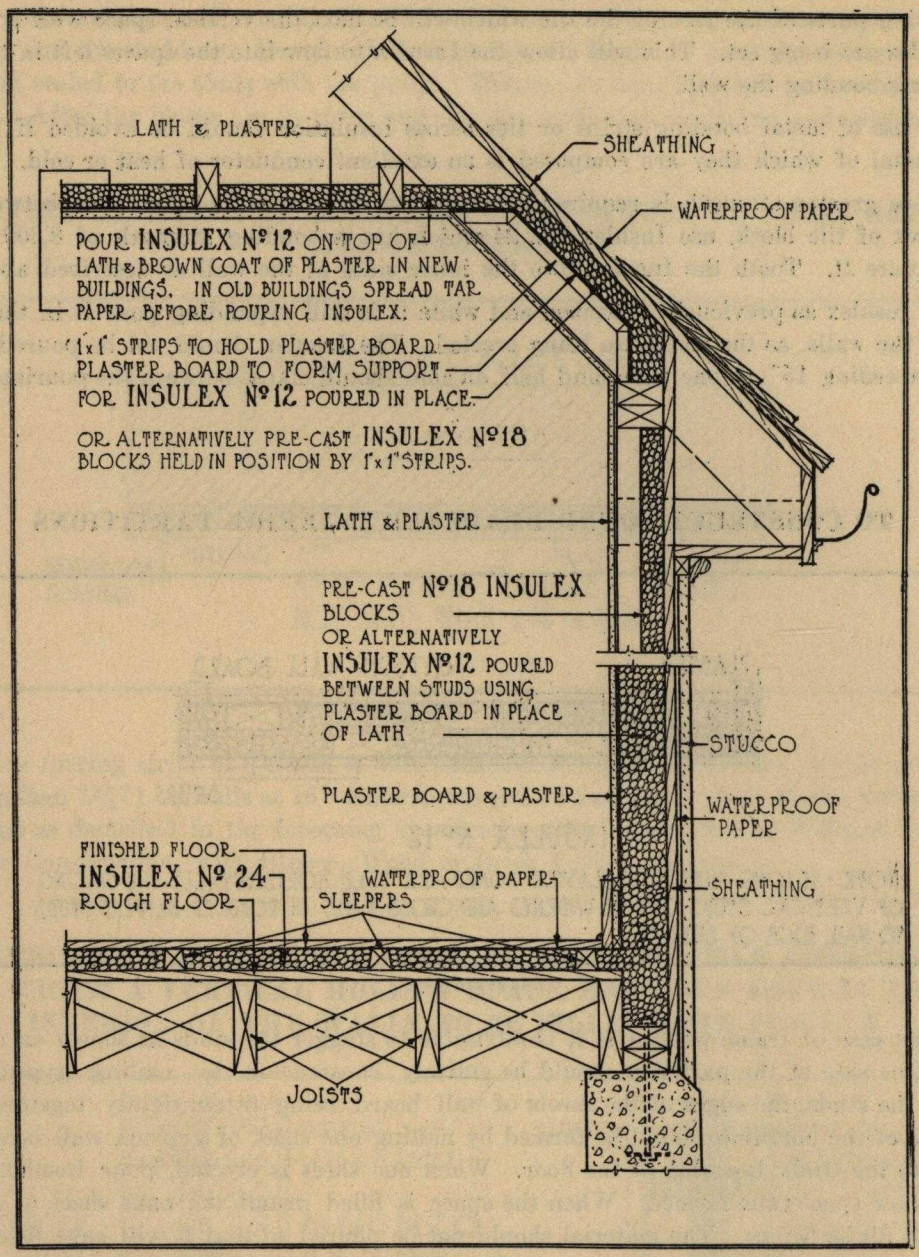

PLASTER
GYPSUM WALL BOARD
STUDS
INSULEX Nº 12
NOTE:- IF LONG SHEETS OF PLASTER BOARD ARE USED HORIZONTALLY THE SPACING OF VERTICAL STUDS CAN BE WIDENED AND CROSS RAILS INTRODUCED BETWEEN STUDS TO NAIL EDGE OF SHEETS.

Diagram (4)

In the case of frame partitions it is advisable to stagger the studs as shown on drawing above. One side of the partition should be entirely constructed by nailing gypsum wall board to the studs, the edges of the sheets of wall board being fitted tightly together. The other side of the partition should be formed by nailing one sheet of gypsum wall board horizontally to the studs, begining at the floor. When one sheet is erected, pour Insulex No. 12 in the hollow space thus formed. When the space is filled install the next sheet of gypsum board and fill as before. The material should not be poured so that it will have to rise to a greater height than fifteen inches at one time, and one half hour should elapse between the pouring of each layer. Depending on the height of the partition and the width of the horizontal section of wall board, it may be found necessary to saw the top section of the wall board horizontally in two before nailing it to the studs, so that after it is nailed in place and the Insulex poured there is still a space of ten inches between the top of the Insulex between the wall boards, and the top of the partition.

To fill this remaining space, which obviously must be impossible to fill with Insulex in liquid state, Insulex blocks should be precast, (see directions for precasting in specifications for "Insulation of Walls of Buildings of Frame Construction with Stucco, Wood or Brick Veneen Exterior" on page one), and fitted into the remaining unfilled space and sealed therein. Then the final horizontal narrow sheet of wall board can be nailed to the studs to complete the top of the side wall of the partition and seal away the precast Insulex blocks.

COMPLETE INSULATION OF HOUSE


LATH & PLASTER
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INSULEX Nº 24
ROUGH FLOOR
WATERPROOF PAPER
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SHEATHING
JOISTS

Diagram (5)

The above drawing shows in section the ground floor, the walls, and the ceiling over the top floor of an ordinary dwelling; it also shows in general way how these vulnerable parts of a dwelling can be protected against heat loss by the use of INSULEX. Please refer to other attached pages for detailed plans and specifications.

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The methods disclosed in these specifications and drawings are a part of the patent property of Illinois Asbestos Products Company. The purchase of Insulex for exclusive use in carrying out the described method implies a license to practice the method and to utilize the resulting structure to the extent of the quantity purchased and no further, the license fee being included in the purchase price. Practice of the method in connection with the installation of any so-called "cellular gypsum" or any other poured-in-place cellular material, other than Insulex, will be considered an infringement upon the rights of Illinois Asbestos Products Co., and may result in a suit directed against either the contractor or the owner, or both.

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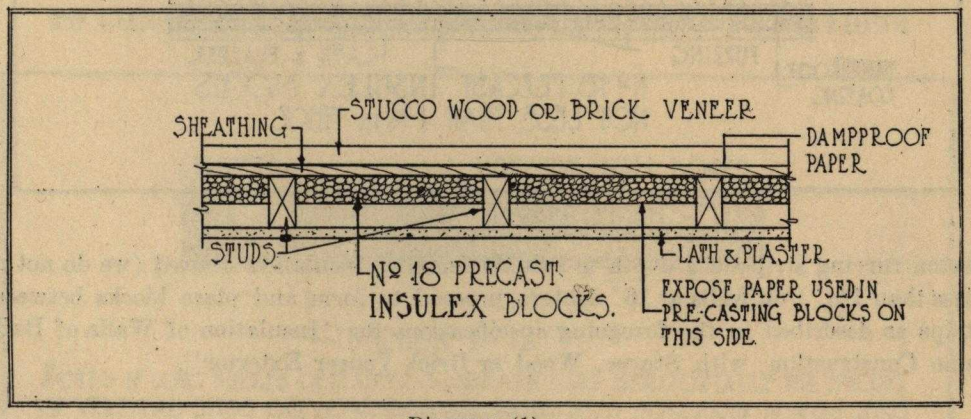

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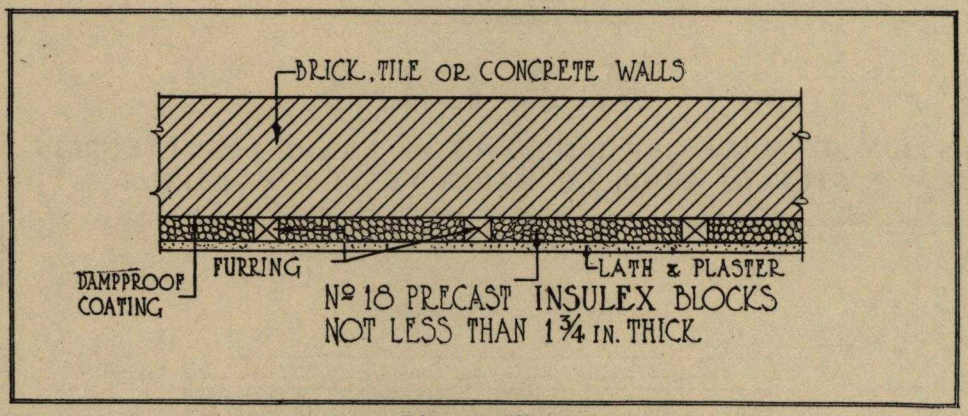

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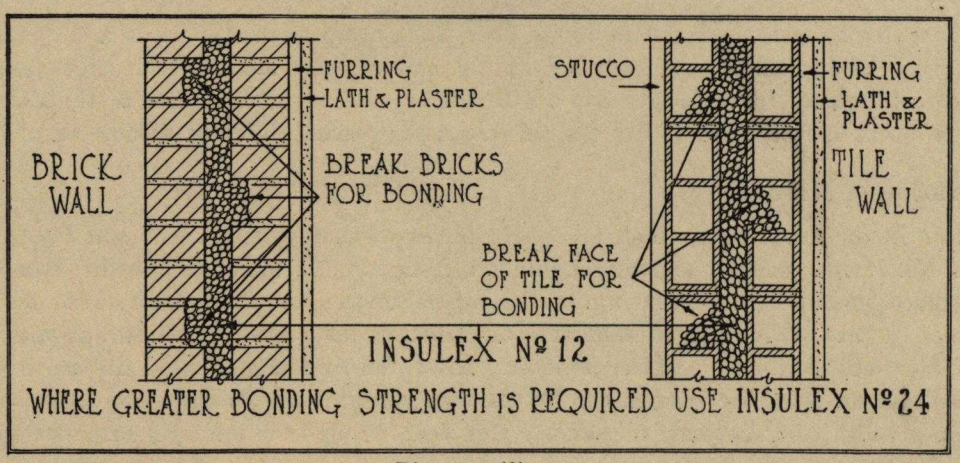

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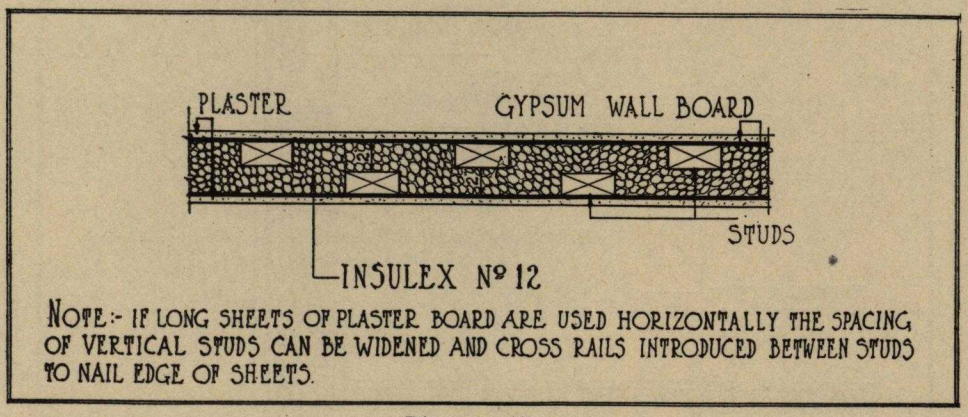
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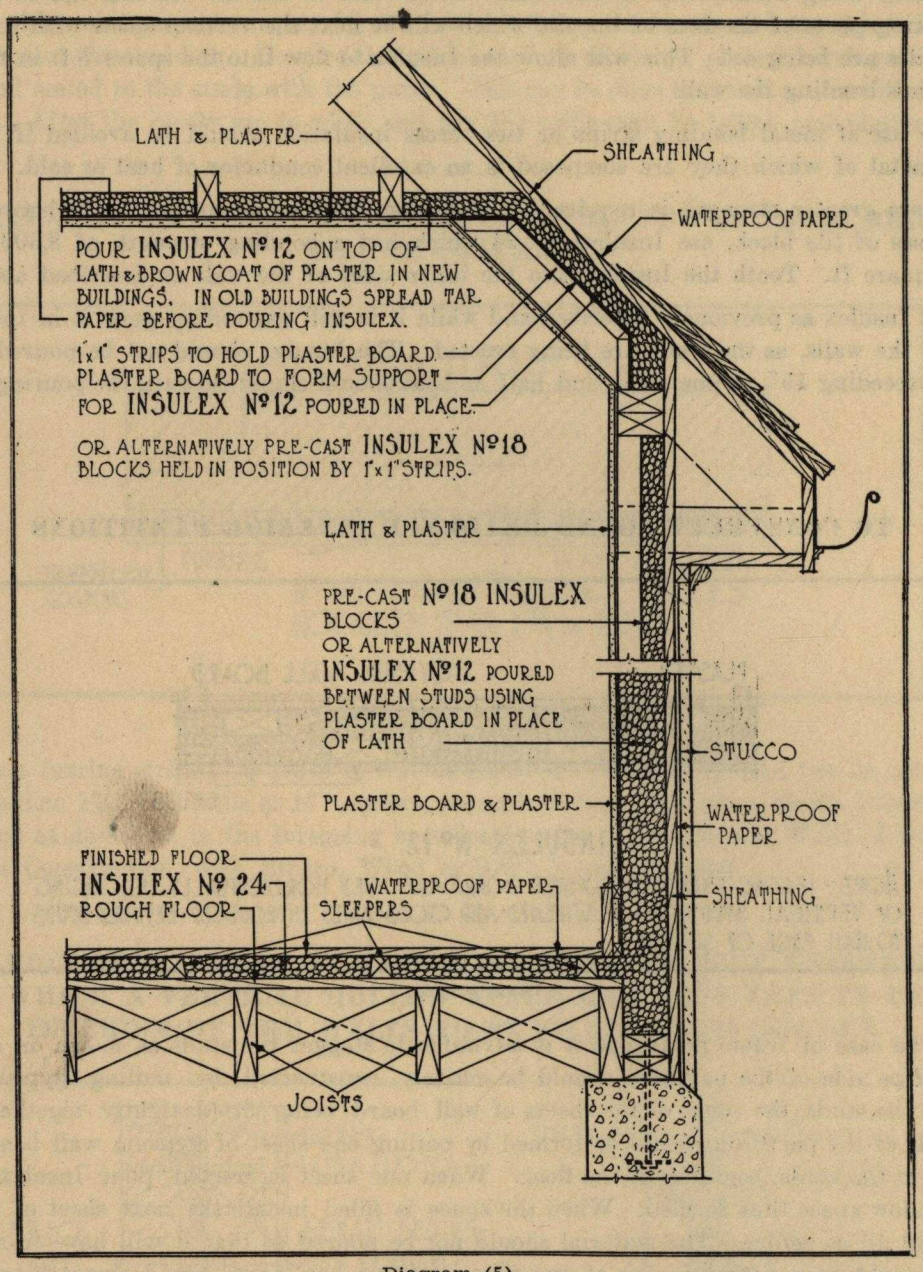
COMPLETE INSULATION OF HOUSE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Specifications for the Use

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Pat. Nov. 25-1924.

FLOORS

INSULATION, SOUND DEADENING OR FLOOR FILL BETWEEN CONCRETE SLABS AND FINISHED WOOD FLOORS, OR BETWEEN ROUGH WOOD FLOORS AND FINISHED WOOD FLOORS

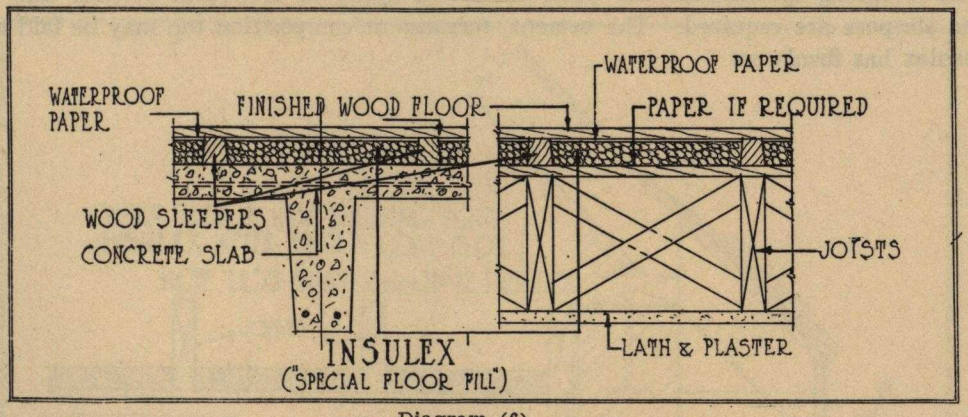

Diagram (6)

Preparation of Floor

Remove all loose material and rubbish from floor. In the case of rough wood floors only, cover floor entirely with sized building paper. Let paper lap two inches where it joins. Flash the paper two inches at the walls.

On top of paper set properly levelled bevelled wood sleepers at about 16 inch centers to receive finished wood floor. The sleepers will act as screeding strips for the Insulex.

Mixing and Application

Place in the mixing container one part of clean water, to this water add two parts of Insulex "Special Floor Fill".

Stir rapidly and thoroughly. The material will immediately start to rise or expand. When thoroughly mixed and while expansion is taking place pour the Insulex in place between the sleepers. Immediately after pouring strike off with a straight edge so notched that the surface of the Insulex will be about ¼ inch below the top of the sleepers. Continue this process until the floor is covered. The striking off, or screeding, will form a hard layer on top of the cellular structure, thus permitting it to be walked on, without injury to the cells, within half an hour after the Insulex has set.

Allow sufficient time for the Insulex to dry out thoroughly before laying finished wood floor.

INSULATION, SOUND DEADENING OR FLOOR FILL BETWEEN CONCRETE SLABS AND CEMENT OR TERRAZZO FLOORS, OR BETWEEN ROUGH WOOD FLOORS AND CEMENT OR TERRAZZO FLOORS

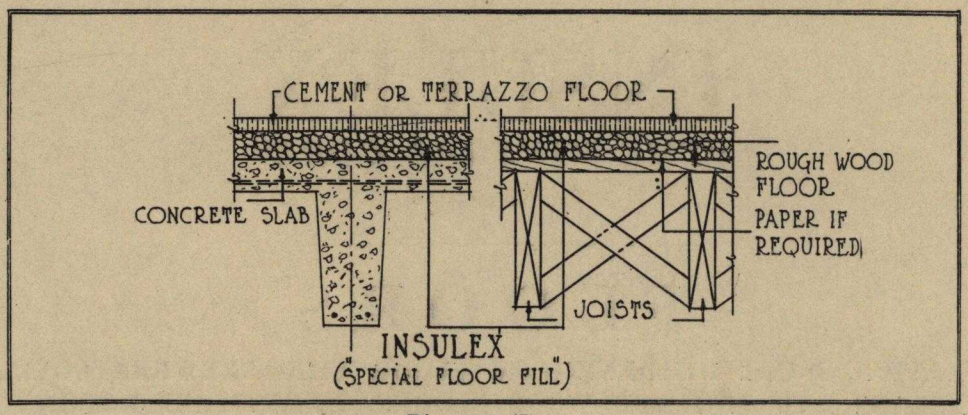

Diagram (7)

The foregoing specification for wood floors will apply to this form of floor also except that no sleepers are required. The cement, terrazzo or composition top may be laid as soon the Insulex has firmly set.

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Specifications for the Use

of

INSULEX

"THE MINERAL CORK"

Pat. Nov. 25, 1924

CEILINGS

INSULATION OF CEILINGS UNDER ROOF SPACE

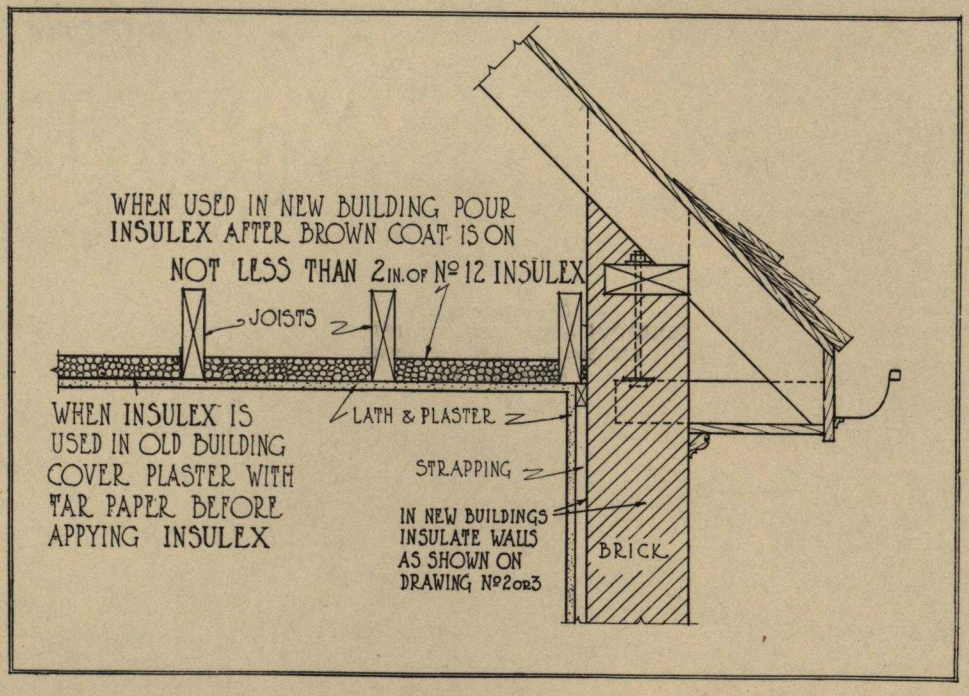
WHEN USED IN NEW BUILDING POUR INSULEX AFTER BROWN COAT IS ON
NOT LESS THAN 2 IN. OF Nº 12 INSULEX
JOISTS
WHEN INSULEX IS USED IN OLD BUILDING COVER PLASTER WITH TAR PAPER BEFORE APPYING INSULEX
LATH & PLASTER
STRAPPING
IN NEW BUILDINGS INSULATE WALLS AS SHOWN ON DRAWING Nº2 OR 3
BRICK

Diagram (8)

Preparation

In the case of buildings already constructed, spread one layer of tar paper between the ceiling joists directly upon the lath and plaster. The edges of the paper should be folded so as to extend up the sides of joists about 3 inches and rest against the joists. When running paper between joists, if it is necessary to have two ends of paper meet, interlock the ends together. The object in using tar paper is to prevent moisture from staining the plaster below when Insulex is first poured.

In the case of new buildings pour the Insulex directly on top of the lath and plaster, the tar paper being unnecessary. The Insulex thus acts as a back plastering and helps to strengthen the plaster key.

Mixing and Applying

Place in mixing container one part of clean water, to this water add two parts of Insulex No. 12. Stir rapidly and thoroughly. The Insulex will immediately start to rise or expand. When thoroughly mixed and while expansion is taking place, pour the Insulex in place between two joists, starting at one wall end. Strike off the material to a level and repeat this operation until the spaces between all joists are filled to the desired thickness. Special care should be taken to see that all openings around the outside walls are well sealed before pouring Insulex. To seal openings mix a small batch of Insulex, dip rags or old newspapers into the mixture and press them into openings with a stick. In 10 or 15 minutes the rags or papers saturated with Insulex will have sealed the holes, afterwards no Insulex can escape.

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Specifications for the Use

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Pat. Nov. 25, 1924

ROOFS

INSULATION ON TOP OF WOOD OR CONCRETE FLAT ROOFS

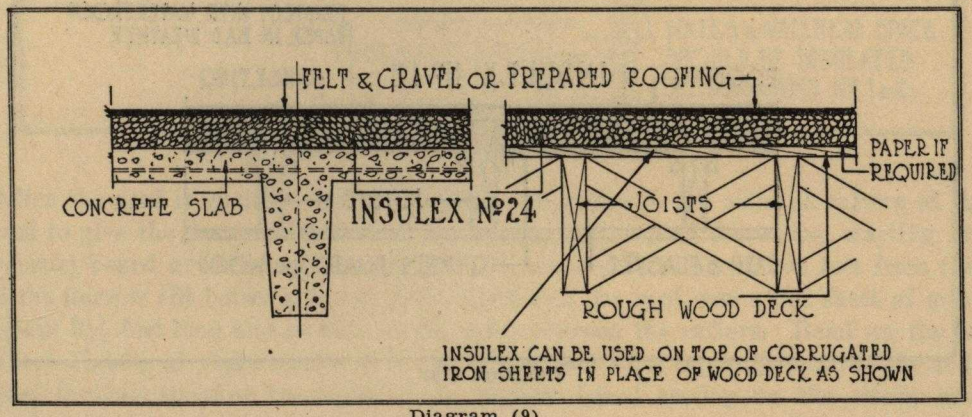
FELT & GRAVEL OR PREPARED ROOFING
PAPER IF REQUIRED
CONCRETE SLAB
INSULEX Nº24
JOISTS
ROUGH WOOD DECK
INSULEX CAN BE USED ON TOP OF CORRUGATED IRON SHEETS IN PLACE OF WOOD DECK AS SHOWN

Diagram (9)

Preparation of Roof

Remove all loose material and rubbish from the roof surface. All drain connections should be set to proper grade and protected by the Plumbing Contractor so that Insulex will not flow into and clog them.

About one foot from the parapet wall on one side of the roof, lay the first screed strip of the thickness the insulation is desired (not less than 1 inch thick) the strip to extend across the roof; the remainder of the screed strips can be laid three to six feet apart.

In the case of wood roofs, if the deck is not watertight and if damage to the floor below is likely to result should some Insulex leak through, cover the roof with tar paper with edges lapped two inches.

Mixing and Application of Insulex

Place in the mixing container one part of clean water, to this water add two parts of Insulex No. 24. Stir rapidly and thoroughly. The material will immediately start to rise or expand. When thoroughly mixed and while expansion is taking place, pour the Insulex in place, starting at one end of the section formed by the screed strip and the wall. Strike off with a straight edge to move the material into place and break down the top cells to form a hard crust that will protect the cells beneath. Repeat the operation until a section across the roof is completed. Move the screed strips three to six feet over from their first position and proceed as before. The first strip of Insulex will have set sufficiently to act as a guide for one end of the straight edge. After the roof has been covered and before the Insulex has thoroughly dried, mix a batch of Insulex to about the consistency of cream and broom this mixture over the surface. This, with the previous screeding, will insure a smooth hard top.

When the entire roof has been covered in this manner and the Insulex has been allowed to dry, the roof is ready for laying felt and gravel or prepared roofing.

INSULATION BETWEEN ROOF JOISTS

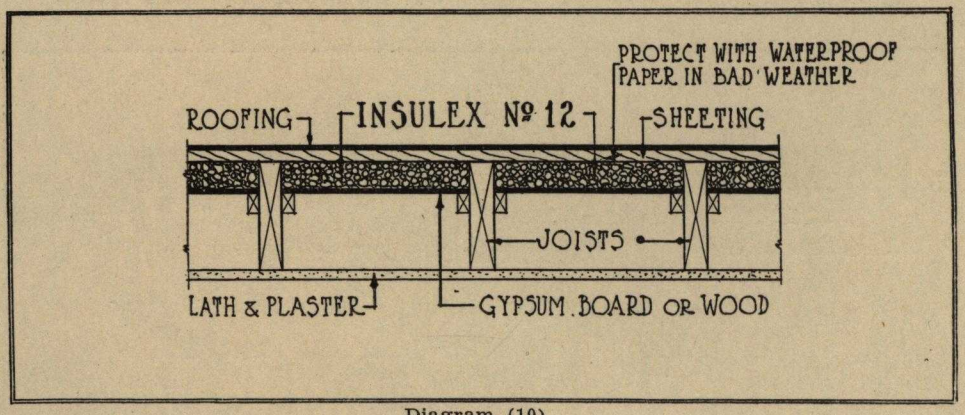

Diagram (10)

Preparation of Roof

Nail strips to sides of joists at the level required to give the desired thickness of insulation. This should not be less than 2″ and it will be found that a much greater thickness is economically justified. On top of the strips lay gypsum board or other support suitable for supporting the Insulex when poured in place.

Mixing and Application

Mix Insulex No. 12 as previously described and fill space between joists to level of top of joists. In bad weather protect the newly formed Insulex by covering same with tar paper. The finishing of the roof with sheeting, roofing, etc., and the plastering of the ceiling below can then be done.

INSULATION OF ROOFS OF RESIDENCES OR BUILDINGS HAVING PITCHED ROOFS AND WOOD RAFTERS

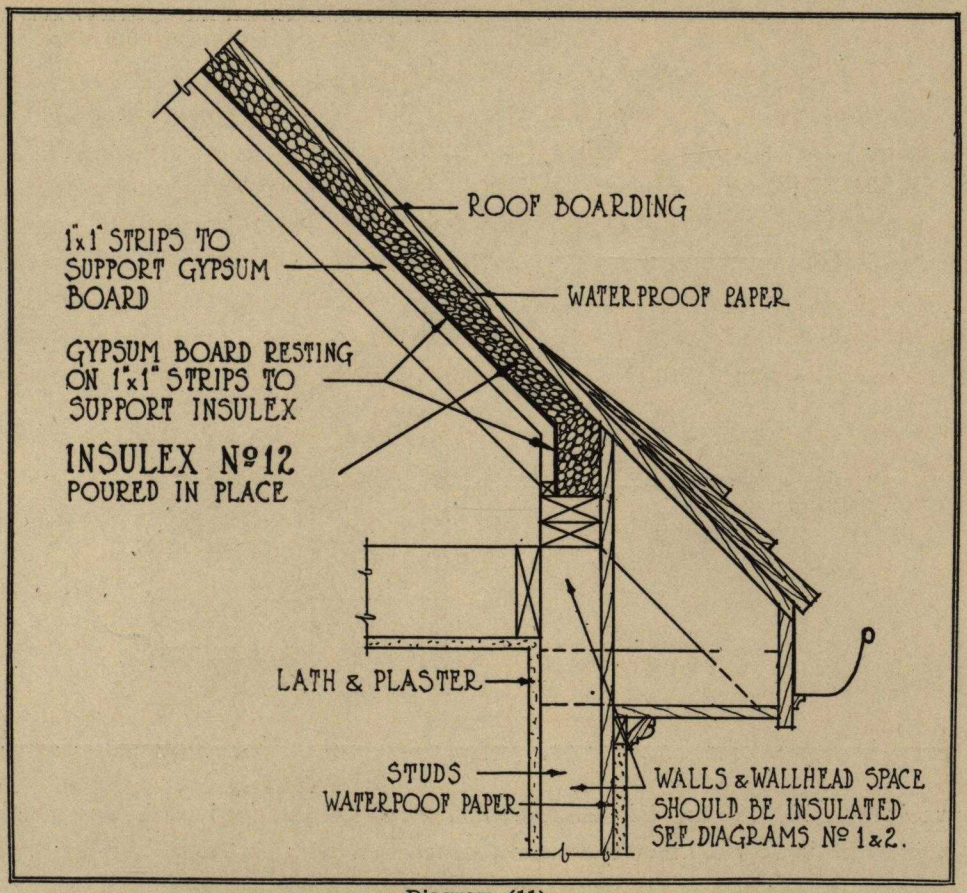
ROOF BOARDING
1"x1" STRIPS TO SUPPORT GYPSUM BOARD
WATERPROOF PAPER
GYPSUM BOARD RESTING ON 1"x1" STRIPS TO SUPPORT INSULEX
INSULEX Nº12 POURED IN PLACE
LATH & PLASTER
STUDS
WATERPOOF PAPER
WALLS & WALLHEAD SPACE SHOULD BE INSULATED SEE DIAGRAMS Nº 1&2.

Diagram (11)

After the roof is enclosed and watertight, nail strips to the sides of rafters at the level required to give the desired thickness of insulation. On top of the strips, starting at eaves, lay gypsum board or other suitable support for a distance of about two feet from the eaves. To fill the narrow slit between the gypsum board and the roof, use a flat sheet of galvanized iron about 2½ feet long and as wide as the space between the rafters. Bend up the edges of iron sheet slightly at right angles at the sides, the bent sides tapering towards the end.

Rest the iron sheet on the edges of the gypsum board resting on the cleats, and after mixing Insulex No. 12 as previously described dump it onto the iron sheet which will act as a funnel for pouring the Insulex into the narrow space between the gypsum board and the roof.

If insulation is to be installed all the way up to ridge of roof, use precast Insulex slabs for the last few feet as ridge is approached. Make and install the slabs in the manner described in the last paragraph of a specification under the heading "To Construct Sound Deadened Interior Partitions." See page 7. If insulation is not carried up to ridge, the attic ceiling can be constructed and insulated by method shown in diagram No. 8, page 11.

ALTERNATIVE METHOD OF INSULATING ROOFS OF RESIDENCES OR BUILDINGS HAVING PITCHED ROOFS AND WOOD RAFTERS

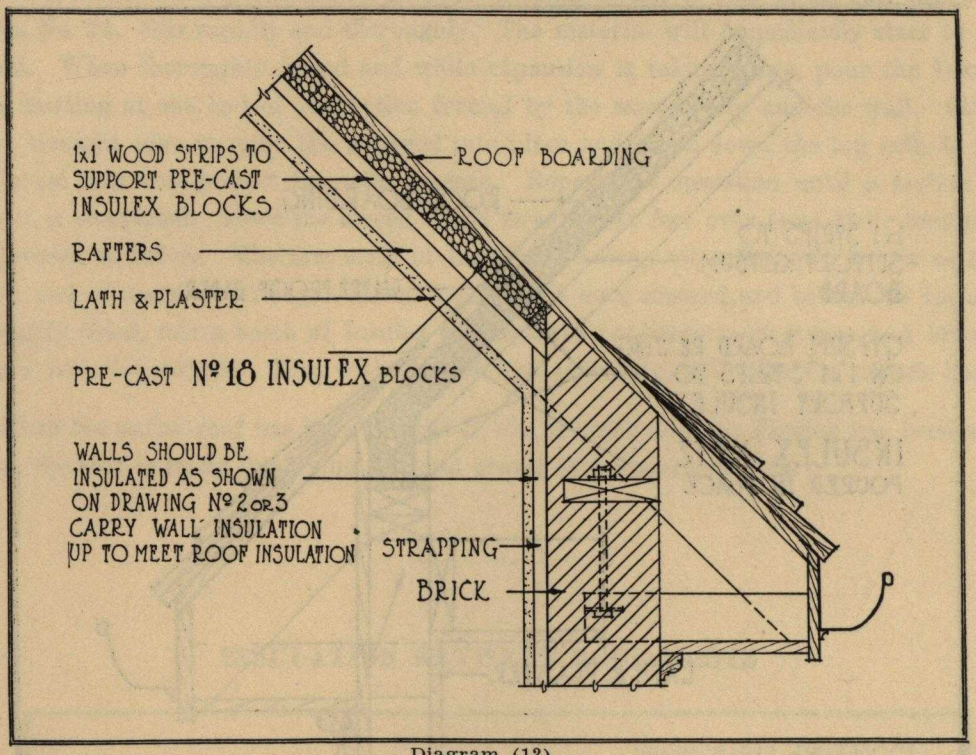
1x1 WOOD STRIPS TO SUPPORT PRE-CAST INSULEX BLOCKS
ROOF BOARDING
RAFTERS
LATH & PLASTER
PRE-CAST Nº 18 INSULEX BLOCKS
WALLS SHOULD BE INSULATED AS SHOWN ON DRAWING Nº 2 OR 3 CARRY WALL INSULATION UP TO MEET ROOF INSULATION
STRAPPING
BRICK

Diagram (12)

Form Insulex No. 18 into slabs of desired thickness as described in the specification for "Insulation of Walls of Buildings of Frame Construction with Stucco, Wood, or Brick Veneer Exterior" on page five. When the roof has been sheeted and is rain tight place pre-cast blocks of Insulex cut to a width to fit between the rafters, and secure the blocks by nailing a 1″x1″ strip to the side of each rafter, roughly seal joints by method also described in specifications for "Insulation of Walls of Buildings of Frame Construction with Stucco, Wood or Brick Veneer Exterior", (see page five).

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INSULEX

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